

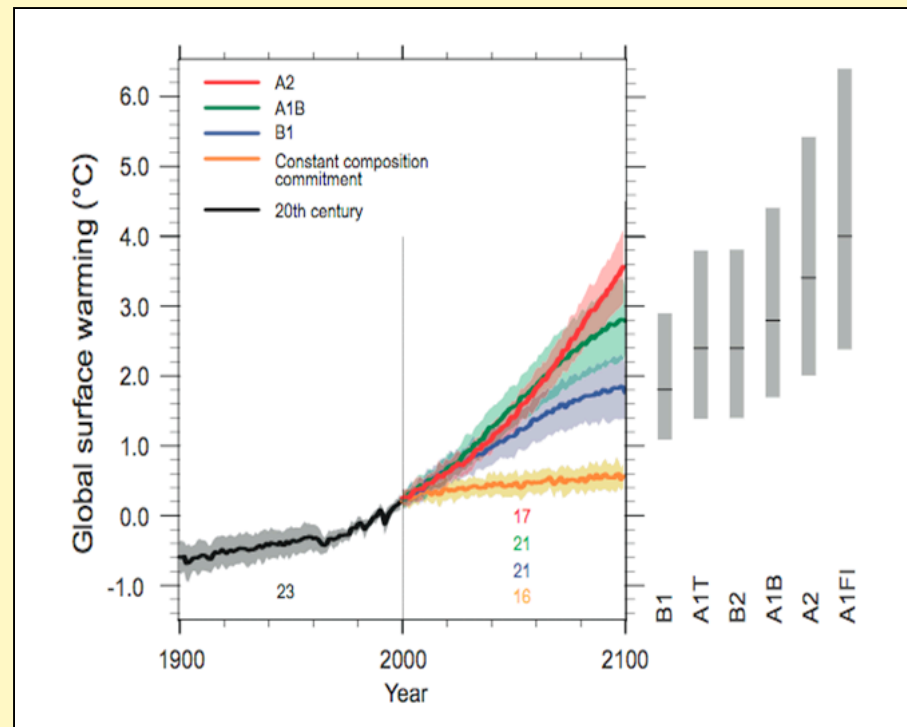
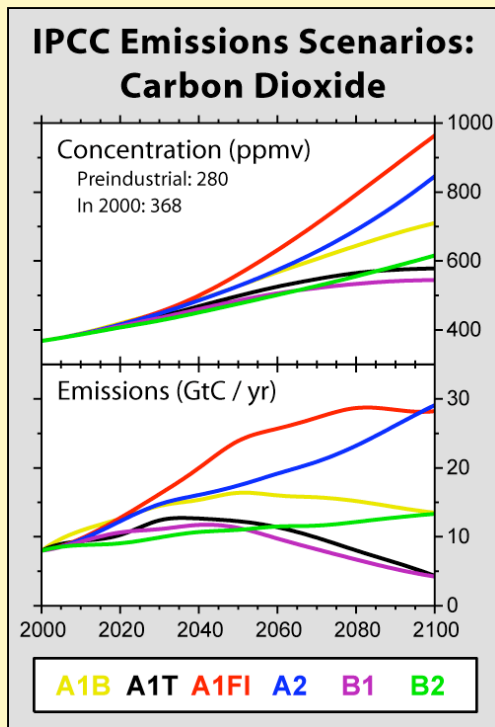
Adaptation to Climate Change Working Group

Sue Graham and Jeff Segall



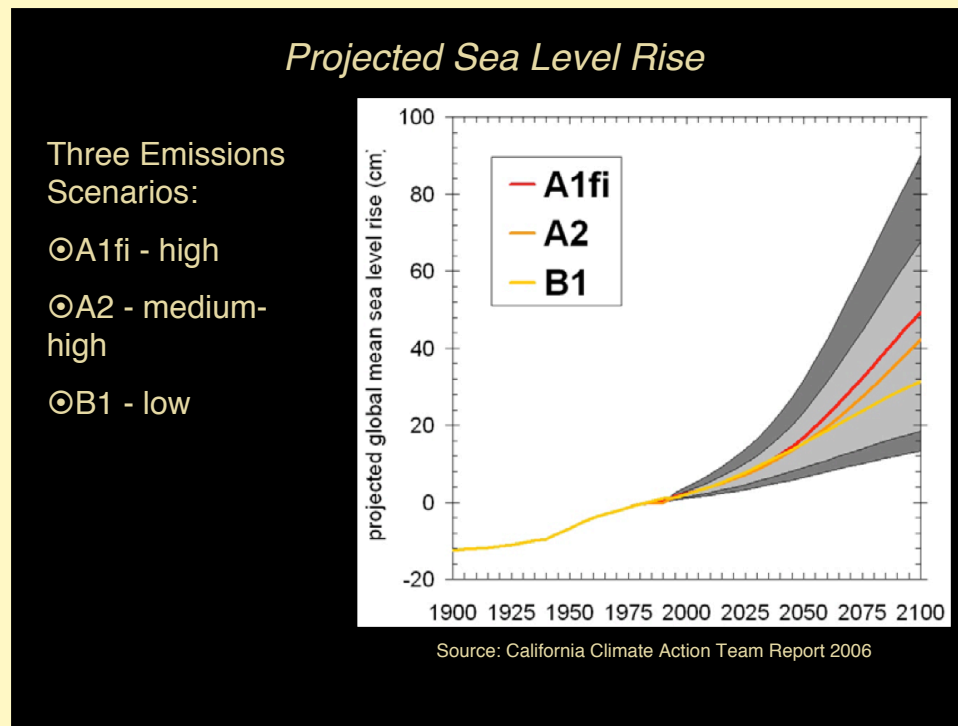
Background: Why Adaptation?

- Climate change is occurring, and will accelerate, even if the world “goes green”.



Sea Level Rise : The big picture

- According to the IPCC, the sea level rise by 2100 from “best case and “worse case” emissions scenario are similar.



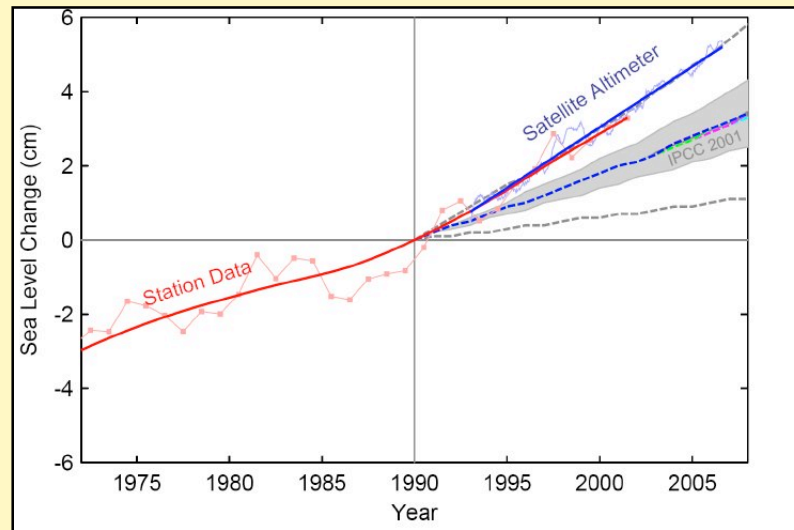
Sea Level Rise : The big picture

- IPCC sea level rise is mostly from thermal expansion
 - This process will never stop
- IPCC does not include increased melting of the huge ice sheets
 - Ice sheet melting not well understood
- From IPCC 4th Assessment (2007):

*“The projections do not include uncertainties in climate-carbon cycle feedbacks nor the full effects of changes in ice sheet flow, therefore the upper values of the ranges **are not to be considered upper bounds for sea level rise.** They include a contribution from increased Greenland and Antarctic ice flow at the rates observed for 1993-2003, **but this could increase or decrease in the future.**”*

Sea and Bay Level Rise

- There is evidence that seas are already rising faster than the IPCC projections indicate



“Overall, these observational data underscore the concerns about global climate change. Previous projections, as summarized by IPCC, have not exaggerated but may in some respects even have underestimated the change, in particular for sea level. “

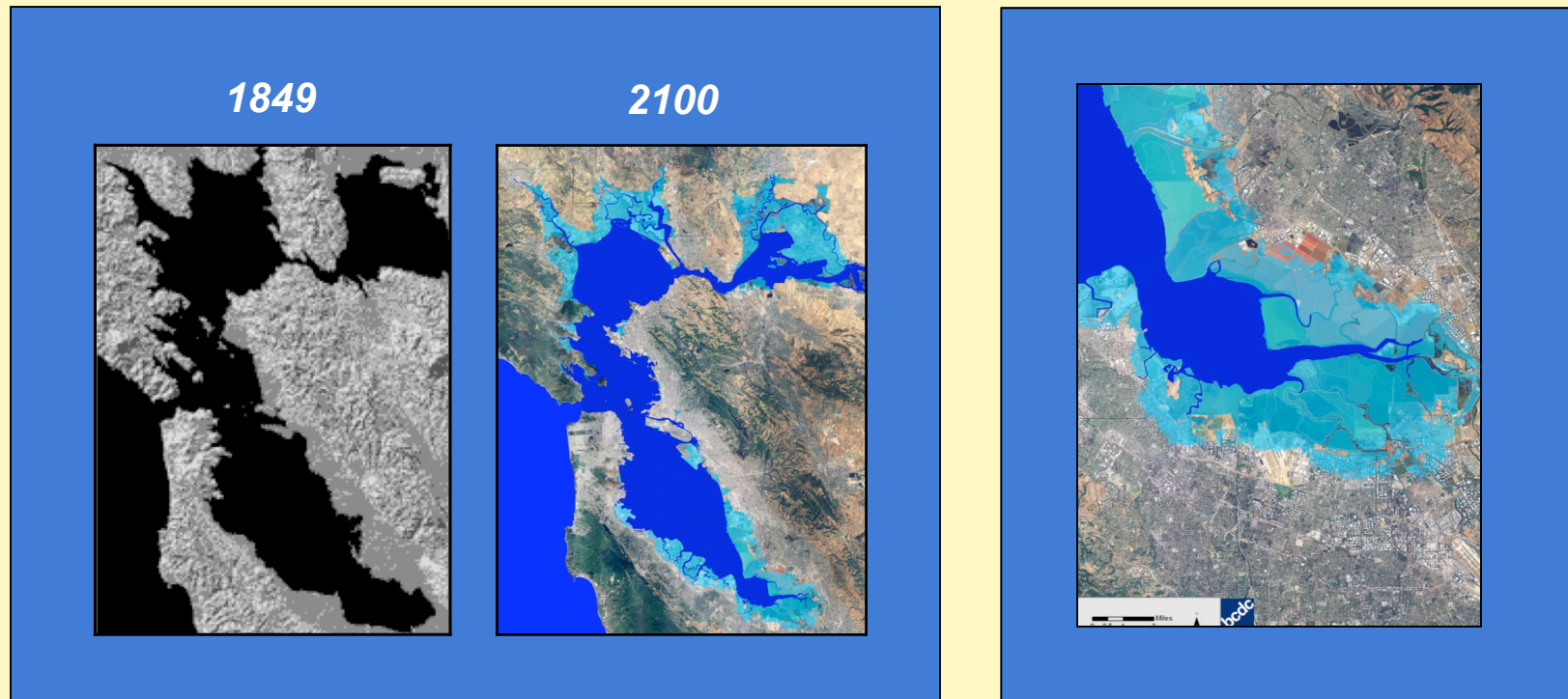
From: Stefan Rahmstorf, Anny Cazenave, John A. Church, James E. Hansen, Ralph F. Keeling, David E. Parker, Richard C. J. Somerville, *Science*, 709, 2007.

Sea Level Rise: Projections, Uncertainty and Risk Management

- IPCC projections provide a good starting point
- Their projections are consensus-based
- Do not provide a reasonable worst-case scenario
- The farther forward in time you go, the greater level of uncertainty

Sea Level Rise and the SF Bay Area

Q: What does 1 meter sea level rise look like here?



*“The good news is the Bay is reclaiming its historic reach.
The bad news is all the expensive stuff we’ve built its way. “*

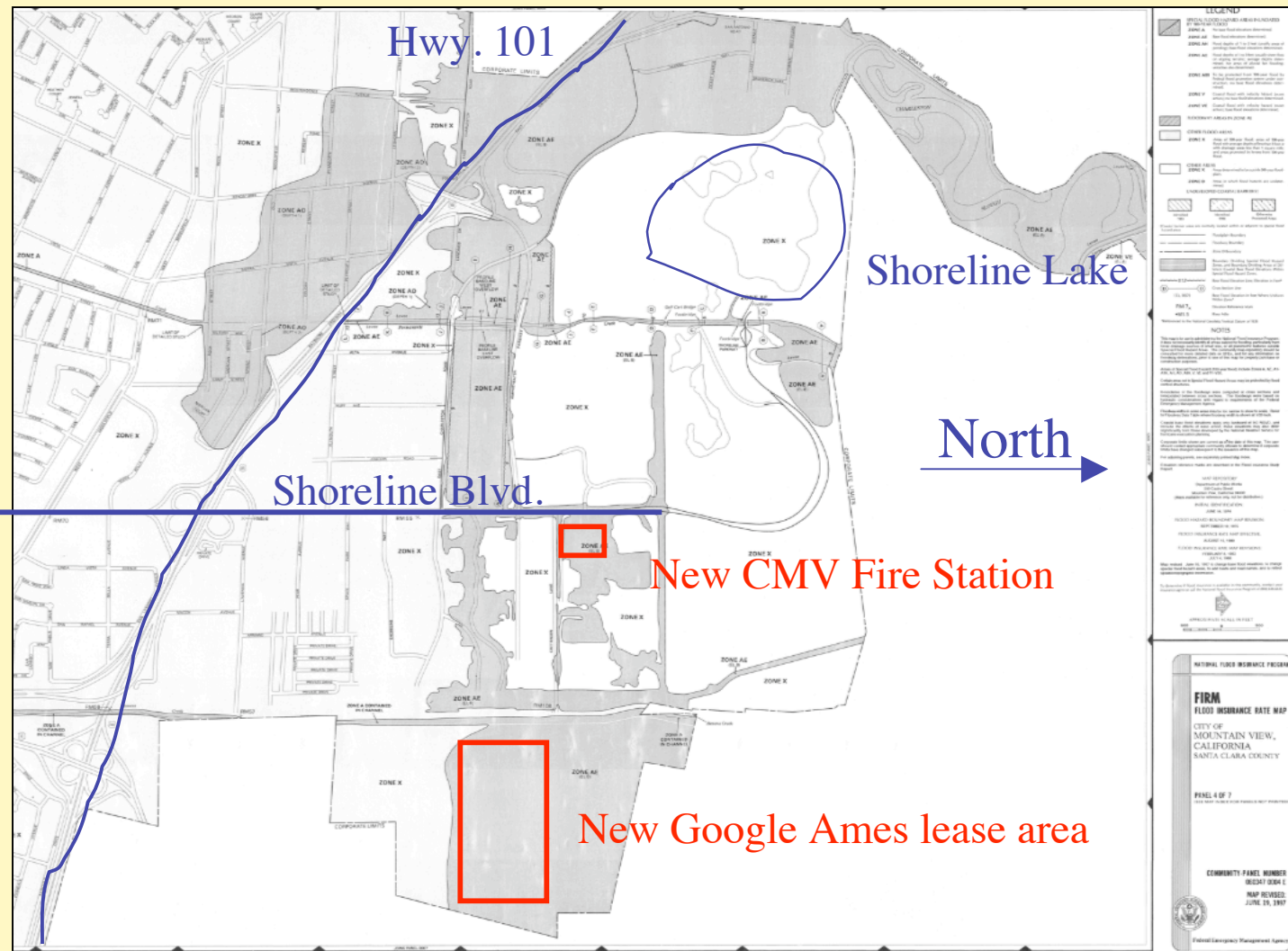
-Will Travis, Executive Director, BCDC

How will this impact Mountain View?

The first major consequence is an increased risk of flooding

- What are the existing conditions?
 - 12% of Mountain View is in the 100 year flood plain
 - Mostly from Permanente Creek
 - Much of this is east of or near Hwy 101
- Sea level rise will make this problem worse
 - “The backed-up bathtub effect”
 - Some studies show that a 1 foot sea-level rise makes a 100 year flood occur every 10 years

FEMA flood maps for North Mountain View



What is happening in South SF Bay?

- Salt Ponds Restoration Project
 - US Fish and Wildlife, other stakeholders
 - Well known wetlands restoration project
- “The Shoreline Study”
 - The Army Core of Engineers, California Coastal Conservancy, FEMA, and the SCVWD
 - Focused on flooding
 - Re-mapping, studying area (Fall 2008)
 - Eventually, really big levees will be built...

What could possibly go wrong?

New Orleans, 2005: Levees fail well below their rated capacity

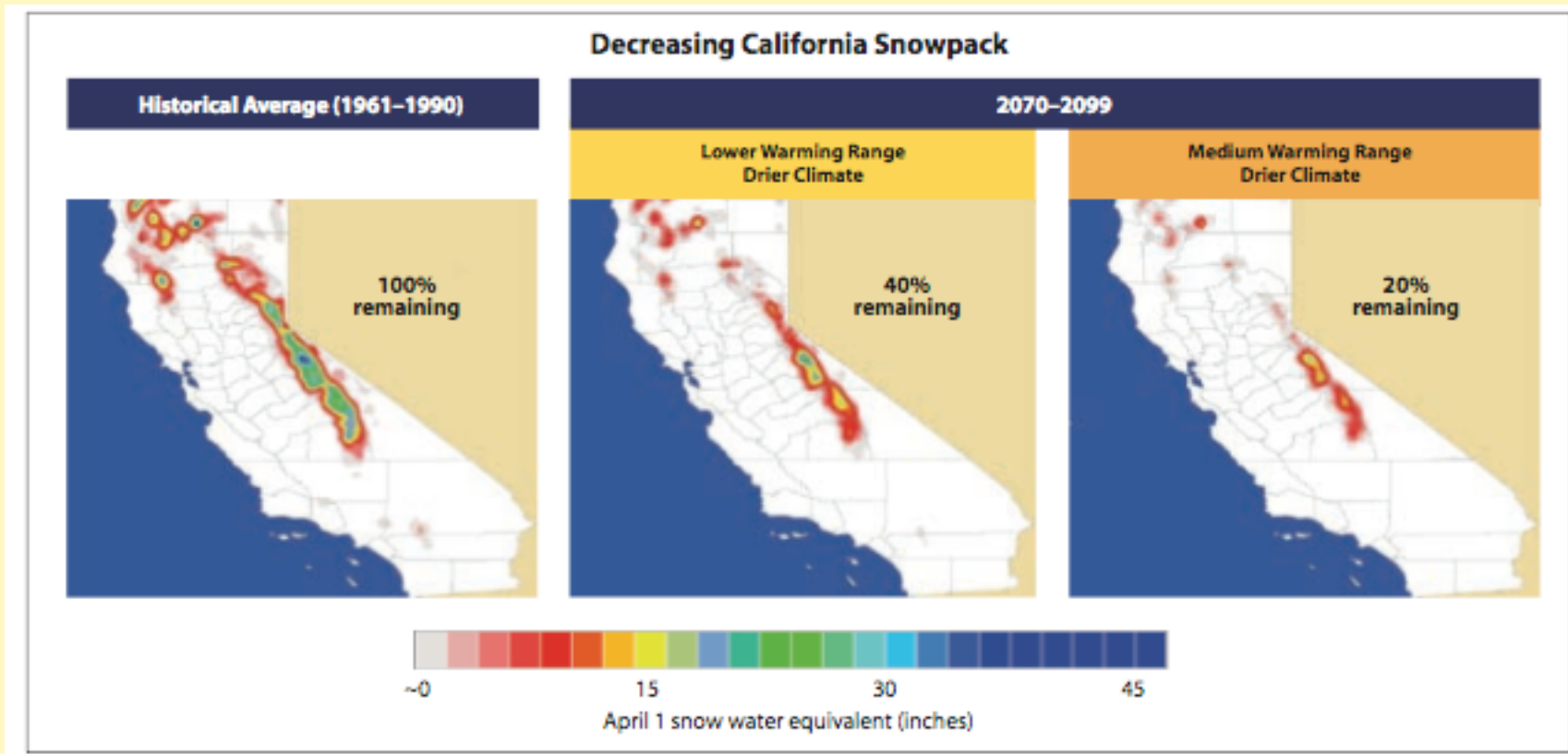


"I don't think anyone anticipated the breach of the levees."
– President George W. Bush, September 1, 2005

Sea Level Rise and Flooding Recommendations

1. Do not add additional critical infrastructure and other investments in the existing floodplain and in other adjacent low-lying areas
 - Housing seems especially ill-advised
2. Work diligently with the Shoreline Project and the Salt Pond Restoration Project so that the flood protection that is eventually built is both effective as flood control while being as environmentally sensitive as possible.
 - Encourage public participation in the process
 - Maintenance of levees is critical

Climate Change and Water Supply

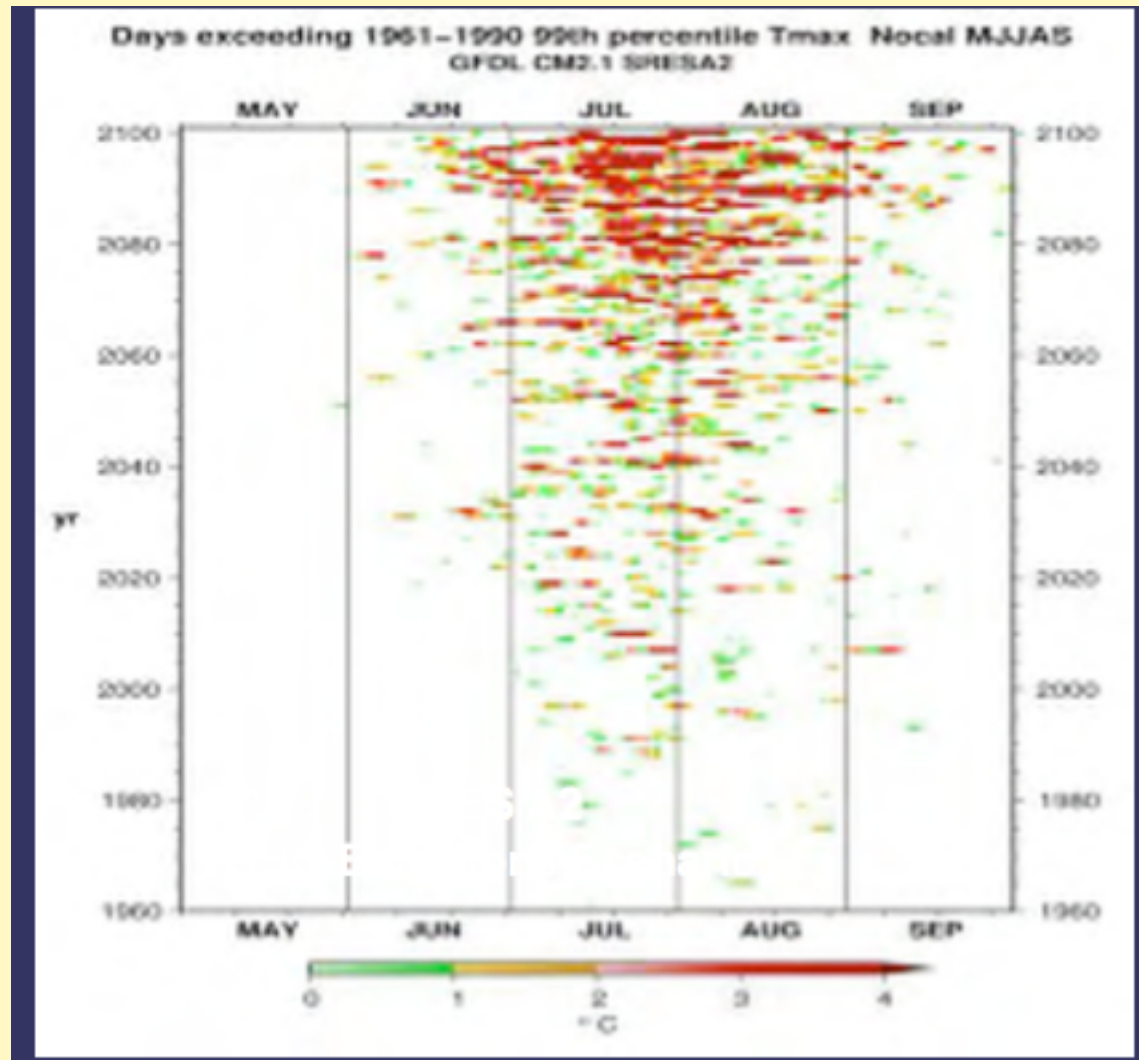


Climate Change and Water Supply Recommendations

(Overlap with Water WG)

- Diversify water supplies from snow-based water supply
- Local/State regulatory reform
 - Gray water
 - Recycled water
 - Rain water
- Provide incentives for conservation

Other Climate Change Impacts: More Extreme Heat Days



Extreme Heat Days Recommendation

- Additional emergency facilities may be needed
- Consider partnering with other agencies (schools) for facilities
- Consider building guidelines, use of construction materials (e.g. pavement), and tree policies that mitigate Urban Heat Island effects
 - Overlaps with Built Environment and Suburban Natural Systems WGs